



Salt Fluoridation

Full Summary

Description:

The use of fluoride in salt to prevent dental caries was first explored in the 1940s by a Swiss physician H. J. Wespi.¹ In 1955 based on recommendations from Wespi and others the United Swiss Rhine Salt Works began producing salt containing 90 mg of sodium fluoride (NaF) per 1 kg of salt in Canton Zurich. In the years that followed fluoridated salt was adapted in other regions of Switzerland and is currently sold in packages up to 1 kg all over Switzerland.

Effectiveness:

In 1965, fluoridated salt began to be distributed in Colombian communities as part of a trial to determine the level of mg of fluoride per kg of salt. The project was found to be beneficial and resulted in a decline in caries rates between 60%-65%. In a study among three Hungarian communities in 1966-76 the decline in caries was 33% among primary dentition and 66% among permanent dentition. In the following years two studies in Spain among children aged 6-13 years reported 50% reduction in caries rates. In the following years other countries began to adapt salt fluoridation programs.¹

In 1994, the Pan American Health Organization (PAHO) launched a multi-year plan to support implementation of salt fluoridation. In Jamaica salt fluoridation was feasible due to the existence of one supplier of refined salt for the entire island. In 1995 a survey was conducted in Jamaica which showed a decline of 69% in caries rates in 15-year olds and 87% reduction in dental caries for 6-year olds.² Apart from the use of fluoride toothpaste between 1984-1995 fluoridated salt was the only other prevention tool that was significant during this time. Subsequently PAHO launched dental caries prevention programs through salt fluoridation in Mexico, Costa Rica, Ecuador, Colombia, Peru, Cuba, Bolivia, Venezuela, and Uruguay. In an institutional cost-benefit analysis of a salt fluoridation program by PAHO it was concluded that for every one US dollar spent in the



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program the benefit through prevention of caries is \$40.¹ This benefit is higher when cost of dental service in private sector is considered.

Cost:

Fluoride in salt can reduce dental caries substantially at a cost of 6 cents per person per year.²

Safety:

A big challenge with the use of salt fluoridation is the avoidance of multiple sources of drinking water in a particular country or region³. The combination of both salt and water fluoridation is not recommended. About 200-250 mg fluoride per kg of salt is reported to be equivalent to 0.5-1.2 ppm of fluoride in water. In Germany, a salt fluoride concentration of 250 mg/Kg is used and does not present a risk for fluorosis. Salt fluoridation is inexpensive, effective, safe, and benefits entire populations.³

References:

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2. Estupinan-Day S, Baez R, Horowitz H, Warpeha R. Salt Fluoridation and dental caries in Jamaica. *Community Dent Oral Epidemiol* 2001;29:247-252.
3. Marthaler T, Petersen P. Salt fluoridation - an alternative in automatic prevention of dental caries. *International Dental Journal* 2005;55:351-358.